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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,860	10/16/2001	Keith Herbert Dodd	899-26	7954

7590 11/22/2004  
Nixon & Vanderhye  
8th Floor  
1100 North Glebe Road  
Arlington, VA 22201-4714

EXAMINER

AUGHENBAUGH, WALTER

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 11/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/890,860

**Applicant(s)**

DODD ET AL.

**Examiner**

Walter B Aughenbaugh

**Art Unit**

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 53-61, 64 and 65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 53-56, 58-60, 64 and 65 is/are rejected.
- 7) ☒ Claim(s) 57 and 61 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Acknowledgement of Applicant's Amendments***

1. The amendments made in claims 53 and 55-61 in the Amendment filed August 20, 2004 (Amdt. D) have been received and considered by Examiner.
2. The cancellation of claims 62 and 63 in (Amdt. D) has been acknowledged by Examiner.
3. New claims 64 and 65 presented in Amdt. D have been received and considered by Examiner.

### ***WITHDRAWN REJECTIONS***

4. The 35 U.S.C. 112 rejection of claims 53, 56-58, 60 and 61 made of record in paragraph 11 of the Office Action mailed April 22, 2004 have been withdrawn due to Applicant's amendments in Amdt. D.

### ***REPEATED REJECTIONS***

5. The 35 U.S.C. 112 rejection of claims 55 and 59 made of record in paragraph 11 of the Office Action mailed April 22, 2004 in regard to the two directions listed in claims 55 and 59 have been repeated for the reasons previously made of record. The basis of rejection regarding the phrase "any adjacent contiguous layer" and the term "contiguous" has been withdrawn due to Applicant's amendments.
6. The 35 U.S.C. 103 rejection of claims 53-56 and 58-60 made of record in paragraph 12 of the Office Action mailed April 22, 2004 has been repeated for the reasons previously made of record and for the following reasons that address the amendments made in the claims in Amdt. D:

The amendments in claims 53 and 58 do not affect the outstanding rejection. In regard to last three lines of the claim, “which extend substantially in the length of the tubular heat transfer element” and “which extend longitudinally in a lengthwise direction relative to the tube axis of the tubular heat transfer element” recite identical structure. As stated in paragraph 12 of the Office Action mailed April 22, 2004, “Swozil et al. teach that the fibers are oriented cross-wise at an angle of approximately 60° on the tube body (col. 1, line 66-col. 2, line 4 and col. 4, lines 19-23 and 44-48) and therefore teach that the rovings extend [longitudinally in a lengthwise direction relative to the tube axis] of the tubular heat transfer element and spirally around the tube axis.”

The amendments in claims 55, 56, 59 and 60 do not affect the outstanding rejection.

### ***NEW OBJECTIONS***

#### ***Claim Objections***

7. Claims 57 and 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***NEW REJECTIONS***

#### ***Claim Rejections - 35 USC § 103***

8. Claims 64 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swozil et al. in view of O'Connor.

Swozil et al. teach the heat transfer element as discussed in the Office Action mailed April 22, 2004. Swozil et al. fail to teach that the composite material further comprises a particulate metal. O'Connor, however, discloses that suitable materials for the reinforcement of

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thermoplastic materials are glass fibers and metal fibers such as iron fibers or a mixture of glass fibers and metal fibers (col. 3, lines 25-31). Therefore, one of ordinary skill in the art would have recognized to have used metal fibers such as iron fibers in combination with the glass fibers of Swozil et al. as a reinforcing agent, since it is notoriously well known to use a combination of glass and metal fibers as reinforcing agents of thermoplastic material as taught by O'Connor.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used metal fibers such as iron fibers in combination with the glass fibers of Swozil et al. as a reinforcing agent, since it is notoriously well known to use a combination of glass and metal fibers as reinforcing agents of thermoplastic material as taught by O'Connor.

#### ***ANSWER TO APPLICANT'S ARGUMENTS***

9. On page 7 of Amdt. D, Applicant states that the terms "longitudinal" and "spirally" are mutually exclusive of one another: since a fiber that is spirally wrapped around a tube has a longitudinal component and a circumferential component, the terms "longitudinal" and "spirally" are not mutually exclusive of one another.

10. Applicant's arguments regarding the 35 U.S.C. 103(a) rejection of claims 53-56 and 58-60 over Swozil et al. presented on pages 8-13 have been fully considered but are not persuasive.

On page 8 of Amdt. D, Applicant argues that the fiber layer of Swozil is not a wall as defined in claims 53 and 58, but the fiber layer of Swozil is a wall that "defin[es] a hollow interior". As Applicant states on page 8 of Amdt. D, the fiber layer of Swozil covers the tube, so it contributes to define the hollow interior of the tube along with the tube. In regard to Applicant's arguments regarding the claimed wall on page 9 of Amdt. D, the term "define" does not recite the location of the wall relative to the interior of the tube and the tube itself. Applicant

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states that the “portion of the Swozil arrangement which the Examiner has identified as being of monolithic construction is not the ‘wall’ as the term is employed in the context of the present invention”, but the portion of paragraph 12 of the Office Action mailed April 22, 2004 that addresses the “monolithic construction” limitation was intended to refer to the fiber layer of Swozil et al.

On page 10 of Amdt. D, Applicant argues that col. 2, lines 12-18 of Swozil teach away from the claimed invention, but this is not the case. The thermoplastic discussed in this portion of Swozil is not the thermoplastic used in the invention of Swozil. Swozil teaches away from a prior art thermoplastic in this portion of Swozil. Applicant argues that the coating of fluorine-containing polymer of Swozil is not a matrix, but since Swozil teaches a layer that comprises the fluorine-containing polymer and the fibers, and that the coating of fluorine-containing polymer “covers each tube wall completely” (col. 2, lines 18-19, 33-35 and 59-65), the coating of fluorine-containing polymer is a matrix in which the fibers are embedded.

In response to Applicant’s arguments in the first paragraph of page 11 of Amdt. D, the Office repeats that Swozil teaches a layer that comprises the fluorine-containing polymer and the fibers, and that the coating of fluorine-containing polymer “covers each tube wall completely” (col. 2, lines 18-19). Not only are the fibers coated, but the tube surface is also completely coated, and this is true regardless of whether the fiber is in yarn or fabric form. The fiber layer (col. 2, lines 33-35 and 59-65) is formed of a composite material since it comprises fibers and the fluorine-containing polymer (that is coated on the fibers and that “covers each tube wall completely”). In regard to Applicant’s arguments in the last paragraph of page 11 of Amdt. D

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and the first paragraph of page 12 of Amdt. D, Swozil plainly teaches glass fibers. Swozil does not teach away from using glass fibers.

In regard to Applicant's argument in the second paragraph of page 12, the direction of fibers that are "angled to the axis of the element" has a longitudinal component, and therefore, the fibers "extend longitudinally in a lengthwise direction relative to the tube axis of the tubular heat transfer element".

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 571-272-1488. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

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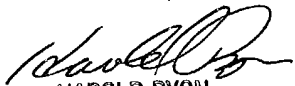
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter B. Aughenbaugh

11/15/04

WBA

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
11/15/04

11/15/04